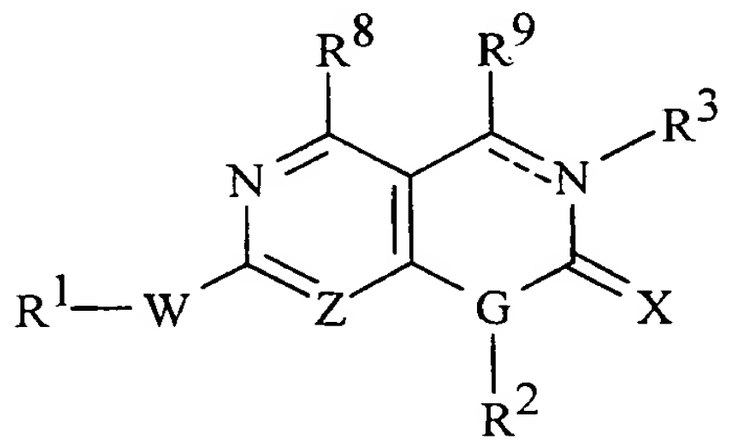
CLAIMS

What is claimed is:

1. A compound of Formula I



I

and the pharmaceutically acceptable salts thereof,

wherein:

the dotted line represents an optional double bond;

Z is N or CH;

G is N or CH;

W is NH, S, SO, or $SO_2$;

X is either O, S, or $NR^{10}$;

$R^1$, $R^2$, and $R^{10}$ are independently selected from the group consisting of H, $(CH_2)_nAr$, $COR^4$, $(CH_2)_n$heteroaryl, $(CH_2)_n$heterocyclyl, $C_1$-$C_{10}$ alkyl, $C_3$-$C_{10}$ cycloalkyl, $C_2$-$C_{10}$ alkenyl, and $C_2$-$C_{10}$ alkynyl, wherein n is 0, 1, 2, or 3, and the $(CH_2)_nAr$, $(CH_2)_n$heteroaryl, alkyl, cycloalkyl, alkenyl, and alkynyl groups are optionally substituted by up to 5 groups selected from $NR^4R^5$, $N(O)R^4R^5$, $NR^4R^5R^6Y$, alkyl, phenyl, substituted phenyl, $(CH_2)_n$heteroaryl, hydroxy, alkoxy, phenoxy, thiol, thioalkyl, halo, $COR^4$, $CO_2R^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$, aldehyde, nitrile, nitro,

heteroaryloxy, $T(CH_2)_mQR^4$, $T(CH_2)_mC(OR^5)H\text{-}(CH_2)_mQR^4$,

$C(O)T(CH_2)_mQR^4$, $NHC(O)T(CH_2)_mQR^4$,

$T(CH_2)_mC(O)NR^4NR^5$, or $T(CH_2)_mCO_2R^4$ wherein each m is independently 1-6, T is O, S, $NR^4$, $N(O)R^4$, $NR^4R^6Y$, or $CR^4R^5$, and Q is O, S, $NR^5$, $N(O)R^5$, or $NR^5R^6Y$;

when the dotted line is present, $R^3$ is absent;

otherwise $R^3$ has the meanings of $R^2$, wherein $R^2$ is as defined above, as well as OH, $NR^4R^5$, $COOR^4$, $OR^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$,

$T(CH_2)_mQR^4$, $T(CH_2)_mC(OR^5)H\text{-}(CH_2)_mQR^4$,

wherein T and Q are as defined above;

$R^4$ and $R^5$ are each independently selected from the group consisting of hydrogen, $C_1$-$C_6$ alkyl, substituted alkyl, $C_2$-$C_6$ alkenyl, $C_2$-$C_6$ alkynyl, $N(C_1\text{-}C_6\text{alkyl})_{1 \text{ or } 2}$, $(CH_2)_nAr$, $C_3$-$C_{10}$ cycloalkyl, heterocyclyl, and heteroaryl, or $R^4$ and $R^5$ together with the nitrogen to which they are attached optionally form a ring having 3 to 7 carbon atoms and said ring optionally contains 1, 2, or 3 heteroatoms selected from the group consisting of nitrogen, substituted nitrogen, oxygen, and sulfur;

when $R^4$ and $R^5$ together with the nitrogen to which they are attached form a ring, the said ring is optionally substituted by 1 to 3 groups selected from OH, $OR^4$, $NR^4R^5$, $(CH_2)_mOR^4$, $(CH_2)_mNR^4R^5$,

Sub AS Cont

$T\text{-}(CH_2)_mQR_4$, $CO\text{-}T\text{-}(CH_2)_mQR^4$, $NH(CO)T(CH_2)_mQR^4$, $T\text{-}(CH_2)_mCO_2R^4$, or $T(CH_2)_mCONR^4R^5$.

$R^6$ is alkyl;

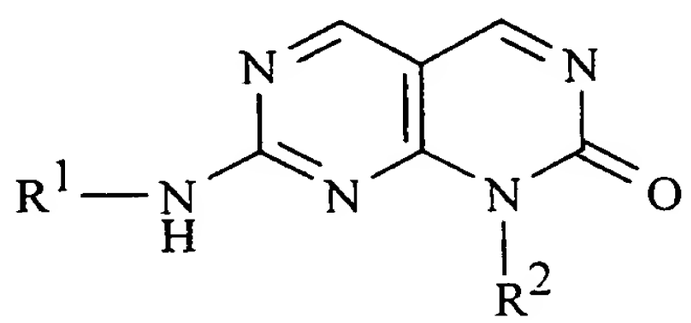
$R^8$ and $R^9$ independently are H, $C_1$-$C_3$ alkyl, $NR^4R^5$, $N(O)R^4R^5$, $NR^4R^5R^6Y$, hydroxy, alkoxy, thiol, thioalkyl, halo, $COR^4$, $CO_2R^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$, CHO, CN, or $NO_2$;

when the dotted line is absent, $R^9$ is additionally carbonyl, thiocarbonyl, imine and substituted imine, oxime and oxime ether, and

Y is a halo counter-ion.

2. A compound of Claim 1 wherein Z and G both are N, W is NH, and $R^8$, and $R^9$ both are hydrogen.

3. A compound of Claim 2 having the formula



4. A compound of Claim 3 wherein $R^1$ is phenyl or substituted phenyl, pyridyl or substituted pyridyl.

5. A compound of Claim 4 wherein $R^2$ is an alkyl, substituted alkyl, or cycloalkyl unsubstituted or substituted.

6. A compound selected from:

1-Methyl-7-[4-(pyrazol-1-yl)phenylamino]pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Methyl-7-[4-(4-methylpiperazin-1-yl)phenylamino]pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Methyl-7-[4-(4-hydroxypiperidin-1-yl)phenylamino]pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Methyl-7-{4-[4-(dimethylamino)piperidin-1-yl]phenylamino}-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Isopropyl-7-[4-(pyrazol-1-yl)phenylamino]pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Isopropyl-7-[4-(4-methylpiperazin-1-yl)phenylamino]pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Isopropyl-7-[4-(4-hydroxypiperidin-1-yl)phenylamino]pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Isopropyl-7-{4-[4-(dimethylamino)piperidin-1-yl]phenylamino}-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Bicyclo[2.2.1]hept-2-yl-7-[4-(pyrazol-1-yl)phenylamino]-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one (exo);

1-Bicyclo[2.2.1]hept-2-yl-7-[4-(4-methylpiperazin-1-yl)phenylamino]pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one (exo);

1-Bicyclo[2.2.1]hept-2-yl-7-[4-(4-hydroxypiperidin-1-yl)phenylamino]pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one (exo);

1-Bicyclo[2.2.1]hept-2-yl-7-{4-[4-(dimethylamino)piperidin-1-yl]phenylamino}pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one (exo);

7-[4-(4-Aminoacetyl-piperazin-1-yl)-phenylamino]-1-cyclopentyl-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-{4-[4-(2-Amino-4-methyl-pentanoyl)-piperazin-1-yl]-phenylamino}-1-cyclopentyl-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Methyl-7-{4-[4-(3-morpholin-4-ylpropyl)piperidin-1-yl]phenylamino}pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Isopropyl-7-{4-[4-(3-morpholin-4-ylpropyl)piperidin-1-yl]phenylamino}pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Cyclopentyl-7-{4-[4-(3-morpholin-4-ylpropyl)piperidin-1-yl]phenylamino}pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Bicyclo[2.2.1]hept-2-yl-7-{4-[4-(3-morpholin-4-ylpropyl)piperidin-1-yl]phenylamino}pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one (exo);

1-Cyclopentyl-7-(4-methanesulfonyl-phenylamino)-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Cyclopentyl-7-(4-fluoro-3-methyl-phenylamino)-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(3-Amino-pyrrolidin-1-yl)-phenylamino]-1-cyclopentyl-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

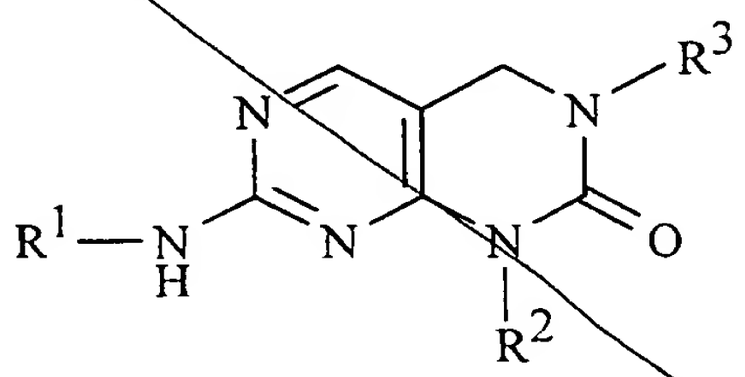
1-Cyclopentyl-7-(4-piperazin-1-yl-phenylamino)-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Cyclopentyl-7-[4-(5-methyl-hexahydro-pyrrolo[3,4-c]pyrrol-2-yl)-phenylamino]-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(4-Acetyl-piperazin-1-yl)-phenylamino]-1-cycloheptyl-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one; and

1-Cyclopentyl-7-(pyridin-4-ylamino)pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one.

7. A compound of Claim 2 having the formula



8. A compound of Claim 7 wherein $R^1$ is alkyl, pyridyl, or phenyl, each optionally substituted with hydroxy, alkoxy, $NR^4R^5$, or $T(CH_2)_mQR^4$.

9. A compound selected from:

1-Methyl-7-[4-(pyrazol-1-yl)phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Methyl-7-[4-(4-methylpiperazin-1-yl)phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Methyl-7-[4-(4-hydroxypiperidin-1-yl)phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Methyl-7-{4-[4-(dimethylamino)piperidin-1-yl]phenylamino}-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Isopropyl-7-[4-(pyrazol-1-yl)phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Isopropyl-7-[4-(4-methylpiperazin-1-yl)phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Isopropyl-7-[4-(4-hydroxypiperidin-1-yl)phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Isopropyl-7-{4-[4-(dimethylamino)piperidin-1-yl]phenylamino}-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Bicyclo[2.2.1]hept-2-yl-7-[4-(pyrazol-1-yl)phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one (exo);

1-Bicyclo[2.2.1]hept-2-yl-7-[4-(4-methylpiperazin-1-yl)phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one (exo);

1-Bicyclo[2.2.1]hept-2-yl-7-[4-(4-hydroxypiperidin-1-yl)phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one (exo);

1-Bicyclo[2.2.1]hept-2-yl-7-{4-[4-(dimethylamino)piperidin-1-yl]phenylamino}-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one (exo);

7-[4-(4-Aminoacetyl-piperazin-1-yl)-phenylamino]-1-cyclopentyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-{4-[4-(2-Amino-4-methyl-pentanoyl)-piperazin-1-yl]-phenylamino}-1-cyclopentyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Methyl-7-{4-[4-(3-morpholin-4-ylpropyl)piperidin-1-yl]phenylamino}-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Isopropyl-7-{4-[4-(3-morpholin-4-ylpropyl)piperidin-1-yl]phenylamino}-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Cyclopentyl-7-{4-[4-(3-morpholin-4-ylpropyl)piperidin-1-yl]phenylamino}-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Bicyclo[2.2.1]hept-2-yl-7-{4-[4-(3-morpholin-4-ylpropyl)piperidin-1-yl]phenylamino}-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one (exo);

1-Cyclopentyl-7-(pyridin-4-ylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Cyclopentyl-7-(4-methanesulfonyl-phenylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Cyclopentyl-7-(4-fluoro-3-methyl-phenylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(3-Amino-pyrrolidin-1-yl)-phenylamino]-1-cyclopentyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(4-Acetyl-piperazin-1-yl)-phenylamino]-1-cyclopentyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Cyclopentyl-7-(4-piperazin-1-yl-phenylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

1-Cyclopentyl-7-[4-(5-methyl-hexahydro-pyrrolo[3,4-c]pyrrol-2-yl)-phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(4-Aminoacetyl-piperazin-1-yl)-phenylamino]-3-(3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(4-Aminoacetyl-piperazin-1-yl)-phenylamino]-3-(2-chloro-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(4-Aminoacetyl-piperazin-1-yl)-phenylamino]-3-(2,6-dichloro-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(4-Aminoacetyl-piperazin-1-yl)-phenylamino]-3-(2-methyl-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(4-Aminoacetyl-piperazin-1-yl)-phenylamino]-3-(2,6-dimethyl-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(2-Diethylamino-ethoxy)-phenylamino]-3-(3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(2-Diethylamino-ethoxy)-phenylamino]-3-(2-chloro-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(2-Diethylamino-ethoxy)-phenylamino]-3-(2,6-dichloro-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(2-Diethylamino-ethoxy)-phenylamino]-3-(2-methyl-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(2-Diethylamino-ethoxy)-phenylamino]-3-(2,6-dimethyl-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-(4-Diethylamino-butylamino)-3-(3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-(4-Diethylamino-butylamino)-3-(2-chloro-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-(4-Diethylamino-butylamino)-3-(2,6-dichloro-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-(4-Diethylamino-butylamino)-3-(2-methyl-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-(4-Diethylamino-butylamino)-3-(2,6-dimethyl-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-(Pyridin-4-ylamino)-3-(3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-(Pyridin-4-ylamino)-3-(2-chloro-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-(Pyridin-4-ylamino)-3-(2,6-dichloro-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-(Pyridin-4-ylamino)-3-(2,6-dimethyl-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-(Pyridin-4-ylamino)-3-(2-methyl-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-(Pyridin-4-ylamino)-3-(2,6-dichloro-3,5-dimethoxy-phenyl)-1-cyclopentyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

3-(2-Chloro-3,5-dimethoxy-phenyl)-7-(4-diethylamino-butylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

3-(2-Chloro-3,5-dimethoxy-phenyl)-7-[4-(2-diethylamino-ethoxy)-phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

3-(2-Chloro-3,5-dimethoxy-phenyl)-7-(pyridin-4-ylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

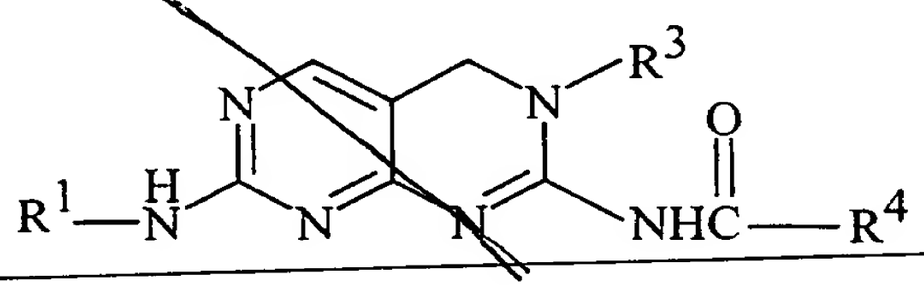
3-(3,5-Dimethoxy-phenyl)-7-(pyridin-4-ylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(2-Diethylamino-ethoxy)-phenylamino]-3-(3,5-dimethoxy-phenyl)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

3-(2,6-Dichloro-3,5-dimethoxy-phenyl)-7-(pyridin-4-ylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one; and

3-(2,6-Dichloro-3,5-dimethoxy-phenyl)-7-[4-(2-diethylamino-ethoxy)-phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one.

10. A compound of Claim 2 having the formula



11. A compound selected from:

1-[7-[4-(2-Diethylamino-ethoxy)-phenylamino]-3-(3,5-dimethoxy-phenyl)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2-yl]-3-ethyl-urea;

1-{3-(2-Chloro-3,5-dimethoxy-phenyl)-7-[4-(2-diethylamino-ethoxy)-phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2-yl}-3-ethyl-urea;

1-*tert*-Butyl-3-[7-[4-(2-diethylamino-ethoxy)-phenylamino]-3-(3,5-dimethoxy-phenyl)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2-yl]-urea;

1-*tert*-Butyl-3-{3-(2-chloro-3,5-dimethoxy-phenyl)-7-[4-(2-diethylamino-ethoxy)-phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2-yl}-urea;

1-*tert*-Butyl-3-[3-(3,5-dimethoxy-phenyl)-7-(pyridin-4-ylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2-yl]-urea;

1-[3-(3,5-Dimethoxy-phenyl)-7-(pyridin-4-ylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2-yl]-3-ethyl-urea;

1-*tert*-Butyl-3-[3-(2-chloro-3,5-dimethoxy-phenyl)-7-(pyridin-4-ylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2-yl]-urea;

1-[3-(2-Chloro-3,5-dimethoxy-phenyl)-7-(pyridin-4-ylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2-yl]-3-ethyl-urea;

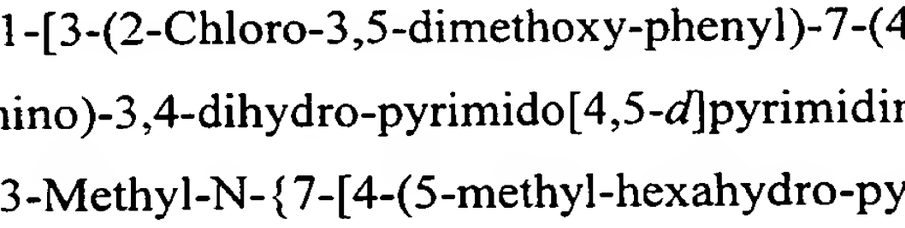
1-[3-(2-Chloro-3,5-dimethoxy-phenyl)-7-(4-diethylamino-butylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2-yl]-3-ethyl-urea;

3-Methyl-N-{7-[4-(5-methyl-hexahydro-pyrrolo[3,4-c]pyrrol-2-yl)-phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2-yl}-butyramide;

1-{7-[4-(4-Acetyl-piperazin-1-yl)-phenylamino]-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2-yl}-3-isopropyl-urea; and

1-*tert*-Butyl-3-[3-(2-chloro-3,5-dimethoxy-phenyl)-7-(4-diethylamino-butylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2-yl]-urea.

12. A compound of Claim 2 having the formula



13. A compound selected from:

1-[7-(4-Fluoro-phenylamino)-pyrimido[4,5-*d*]pyrimidin-2-yl]-3-methyl-urea;

1-Isopropyl-3-(7-phenylamino-pyrimido[4,5-*d*]pyrimidin-2-yl)-urea;

1-{7-[4-(3-Aminomethyl-pyrrolidin-1-yl)-phenylamino]-pyrimido[4,5-*d*]pyrimidin-2-yl}-3-isopropyl-urea;

1-Isopropyl-3-[7-(4-piperazin-1-yl-phenylamino)-pyrimido[4,5-*d*]pyrimidin-2-yl]-urea;

1-{7-[4-(4-Acetyl-piperazin-1-yl)-phenylamino]-pyrimido[4,5-*d*]pyrimidin-2-yl}-3-isopropyl-urea;

N-{7-[4-(3-Amino-pyrrolidin-1-yl)-phenylamino]-pyrimido[4,5-*d*]pyrimidin-2-yl}-3-methyl-butyramide;

N-[7-(4-Piperazin-1-yl-phenylamino)-pyrimido[4,5-*d*]pyrimidin-2-yl]-isobutyramide;

N-{7-[4-(4-Acetyl-piperazin-1-yl)-phenylamino]-pyrimido[4,5-*d*]pyrimidin-2-yl}-3-methyl-butyramide;

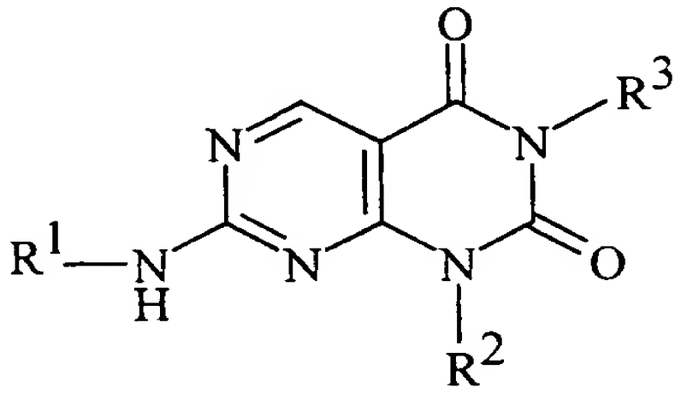
3-Methyl-N-[7-(pyridin-4-ylamino)-pyrimido[4,5-*d*]pyrimidin-2-yl]-butyramide;

1-Isopropyl-3-[7-(pyridin-4-ylamino)-pyrimido[4,5-*d*]pyrimidin-2-yl]-urea; and

N-{7-[4-(3-Aminomethyl-pyrrolidin-1-yl)-phenylamino]-pyrimido[4,5-*d*]pyrimidin-2-yl}-3-methyl-butyramide.

14. A compound of Claim 1 wherein W is S, SO, or $SO_2$.

15. A compound of Claim 1 having the formula



16. A compound selected from:

1-Isopropyl-7-[4-(4-methylpiperazin-1-yl)phenylamino]-1*H*-pyrimido[4,5-*d*]pyrimidine-2,4-dione;

7-[4-(2-Diethylaminoethoxy)phenylamino]-1-isopropyl-1*H*-pyrimido[4,5-*d*]pyrimidine-2,4-dione;

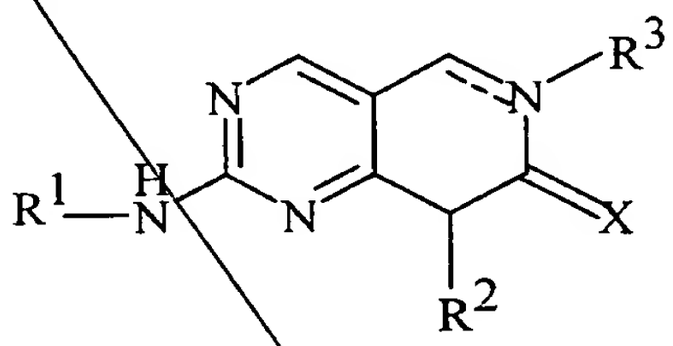
7-(4-Diethylamino-butylamino)-3-(3,5-dimethoxy-phenyl)-1-ethyl-1*H*-pyrimido[4,5-*d*]pyrimidine-2,4-dione;

7-[4-(2-Diethylamino-ethoxy)-phenylamino]-3-(3,5-dimethoxy-phenyl)-1-ethyl-1*H*-pyrimido[4,5-*d*]pyrimidine-2,4-dione; and

7-(Pyridin-4-ylamino)-3-(3,5-dimethoxy-phenyl)-1-ethyl-1*H*-pyrimido[4,5-*d*]pyrimidine-2,4-dione.

17. A compound of Claim 1 wherein Z is N, G is CH, W is NH, and $R^8$ and $R^9$ both are hydrogen.

18. A compound of Claim 17 having the formula



19. A compound selected from:

2-[4-(3-Amino-pyrrolidin-1-yl)-phenylamino]-8-isopropyl-8*H*-pyrido[4,3-*d*]pyrimidin-7-one;

8-Cyclopentyl-2-[4-(hexahydro-pyrrolo[3,4-c]pyrrol-2-yl)-phenylamino]-8*H*-pyrido[4,3-*d*]pyrimidin-7-one;

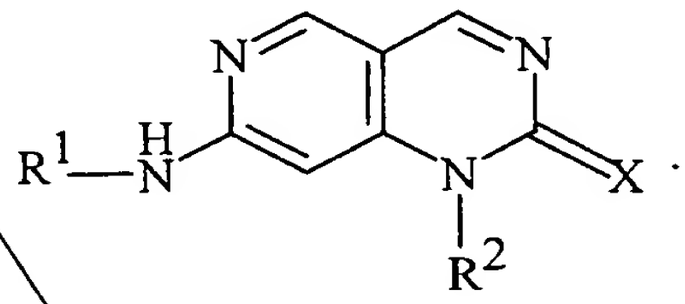
2-[4-(4-Acetyl-piperazin-1-yl)-phenylamino]-8-cyclopentyl-8*H*-pyrido[4,3-*d*]pyrimidin-7-one;

N-{2-[4-(4-Aminoacetyl-piperazin-1-yl)-phenylamino]-8-cyclopentyl-pyrido[4,3-*d*]pyrimidin-7-yl}-2,2-dimethyl-propionamide; and

N-(2-{4-[4-(2-Amino-4-methyl-pentanoyl)-piperazin-1-yl]-phenylamino}-8-cyclopentyl-pyrido[4,3-*d*]pyrimidin-7-yl)-2,2-dimethyl-propionamide.

20. A compound of Claim 1 wherein Z is CH, G is N, W is NH, and $R^8$ and $R^9$ both are hydrogen.

21. A compound of Claim 20 having the formula



22. A compound selected from:

1-(2-Benzyloxyethyl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(Thiophen-2-yl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(Thiophen-2-ylmethyl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(Tetrahydrofuran-2-yl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(Hexa-2,4-diene-1-yl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(Prop-2-yne-1-yl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-[3-(Dimethylamino)prop-1-yl]-7-[4-(4-methylpiperazin-1-yl)phenylamino]pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(3-Hydroxyprop-1-yl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

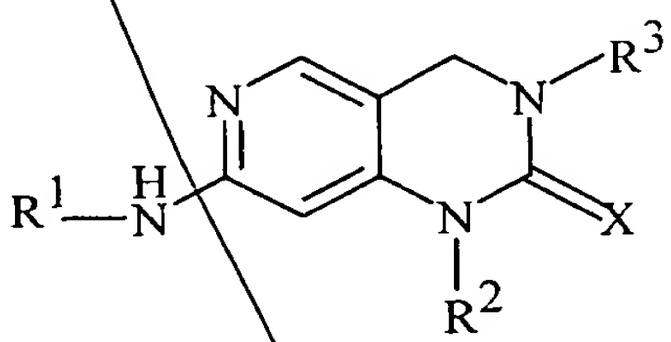
1-(Pyridin-4-ylmethyl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(3,5-Dimethylhept-1-yl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-Cyclopentyl-7-(4-piperazin-1-ylphenylamino)pyrido[4,3-*d*]pyrimidin-2(1*H*)-one; and

7-[4-(3-Aminopyrrolidin-1-yl)phenylamino]-1-cyclopentylpyrido[4,3-*d*]pyrimidin-2(1*H*)-one.

23. A compound of Claim 20 having the formula



24. A compound selected from:

1-(2-Benzyloxyethyl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(Thiophen-2-yl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(Thiophen-2-ylmethyl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(Tetrahydrofuran-2-yl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(Hexa-2,4-diene-1-yl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(Prop-2-yne-1-yl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-[3-(Dimethylamino)prop-1-yl]-7-[4-(4-methylpiperazin-1-yl)phenylamino]-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(3-Hydroxyprop-1-yl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(Pyridin-4-ylmethyl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

1-(3,5-Dimethylhept-1-yl)-7-[4-(4-methylpiperazin-1-yl)phenylamino]-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

3-(3,5-Dimethoxy-phenyl)-7-(pyridin-4-ylamino)-1-ethyl-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

3-(2-Chloro-3,5-Dimethoxy-phenyl)-7-(pyridin-4-ylamino)-1-ethyl-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

3-(2,6-Dichloro-3,5-Dimethoxy-phenyl)-7-(pyridin-4-ylamino)-1-ethyl-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

3-(2-Methyl-3,5-Dimethoxy-phenyl)-7-(pyridin-4-ylamino)-1-ethyl-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

3-(2,6-Dimethyl-3,5-Dimethoxy-phenyl)-7-(pyridin-4-ylamino)-1-ethyl-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

7-[4-(4-Aminoacetyl-piperazin-1-yl)-phenylamino]-3-(3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

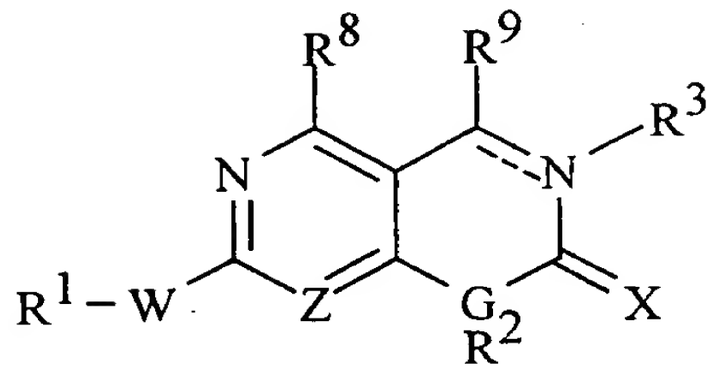
7-[4-(4-Aminoacetyl-piperazin-1-yl)-phenylamino]-3-(2-chloro-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

7-[4-(4-Aminoacetyl-piperazin-1-yl)-phenylamino]-3-(2,6-dichloro-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one;

7-[4-(4-Aminoacetyl-piperazin-1-yl)-phenylamino]-3-(2-methyl-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one; and

7-[4-(4-Aminoacetyl-piperazin-1-yl)-phenylamino]-3-(2,6-dimethyl-3,5-dimethoxy-phenyl)-1-ethyl-3,4-dihydro-pyrido[4,3-*d*]pyrimidin-2(1*H*)-one.

25. A method for controlling proliferative disorders selected from the group consisting of cancer, psoriasis, vascular smooth muscle proliferation associated with a disorder selected from the group consisting of atherosclerosis, postsurgical vascular stenosis, and restenosis in mammals, diabetic retinopathy and angiogenesis, comprising administering to said mammal a therapeutically effective amount of a compound of Formula I



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$R^1$, $R^2$, and $R^{10}$ are independently selected from the group consisting of H, $(CH_2)_nAr$, $COR^4$, $(CH_2)_n$heteroaryl, $(CH_2)_n$heterocyclyl, $C_1$-$C_{10}$ alkyl, $C_3$-$C_{10}$ cycloalkyl, $C_2$-$C_{10}$ alkenyl, and $C_2$-$C_{10}$ alkynyl, wherein n is 0, 1, 2, or 3, and the $(CH_2)_nAr$, $(CH_2)_n$heteroaryl, alkyl, cycloalkyl, alkenyl, and alkynyl groups are optionally substituted by up to 5 groups selected from $NR^4R^5$, $N(O)R^4R^5$, $NR^4R^5R^6Y$, alkyl, phenyl, substituted phenyl, $(CH_2)_n$heteroaryl, hydroxy, alkoxy, phenoxy, thiol, thioalkyl, halo, $COR^4$, $CO_2R^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$, aldehyde, nitrile, nitro,

$$\text{heteroaryloxy, } T(CH_2)_mQR^4, \quad T(CH_2)_mC(OR^5)H\text{-}(CH_2)_mQR^4,$$

$C(O)T(CH_2)_mQR^4$, $NHC(O)T(CH_2)_mQR^4$, $T(CH_2)_mC(O)NR^4NR^5$, or $T(CH_2)_mCO_2R^4$ wherein each m is independently 1-6, T is O, S, $NR^4$, $N(O)R^4$, $NR^4R^6Y$, or $CR^4R^5$, and Q is O, S, $NR^5$, $N(O)R^5$, or $NR^5R^6Y$;

when the dotted line is present, $R^3$ is absent;

otherwise $R^3$ has the meanings of $R^2$, wherein $R^2$ is as defined above, as well as OH, $NR^4R^5$, $COOR^4$, $OR^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$,

$$T(CH_2)_mQR^4,\ T(CH_2)_mC(OR^5)H\text{-}(CH_2)_mQR^4,$$

wherein T and Q are as defined above;

$R^4$ and $R^5$ are each independently selected from the group consisting of hydrogen, $C_1$-$C_6$ alkyl, substituted alkyl, $C_2$-$C_6$ alkenyl, $C_2$-$C_6$ alkynyl, $N(C_1$-$C_6$alkyl$)_{1 \text{ or } 2}$, $(CH_2)_nAr$, $C_3$-$C_{10}$ cycloalkyl, heterocyclyl, and heteroaryl, or $R^4$ and $R^5$ together with the nitrogen to which they are attached optionally form a ring having 3 to 7 carbon atoms and said ring optionally contains 1, 2, or 3 heteroatoms selected from the group consisting of nitrogen, substituted nitrogen, oxygen, and sulfur;

when $R^4$ and $R^5$ together with the nitrogen to which they are attached form a ring, the said ring is optionally substituted by 1 to 3 groups selected from OH, $OR^4$, $NR^4R^5$, $(CH_2)_mOR^4$, $(CH_2)_mNR^4R^5$, $T\text{-}(CH_2)_mQR_4$, $CO\text{-}T\text{-}(CH_2)_mQR^4$, $NH(CO)T(CH_2)_mQR^4$, $T\text{-}(CH_2)_mCO_2R^4$, or $T(CH_2)_mCONR^4R^5$.

$R^6$ is alkyl;

$R^8$ and $R^9$ independently are H, $C_1$-$C_3$ alkyl, $NR^4R^5$, $N(O)R^4R^5$, $NR^4R^5R^6Y$, hydroxy, alkoxy, thiol, thioalkyl, halo, $COR^4$, $CO_2R^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$, CHO, CN, or $NO_2$;

when the dotted line is absent, $R^9$ is additionally carbonyl, thiocarbonyl, imine and substituted imine, oxime and oxime ether, and

Y is a halo counter-ion.

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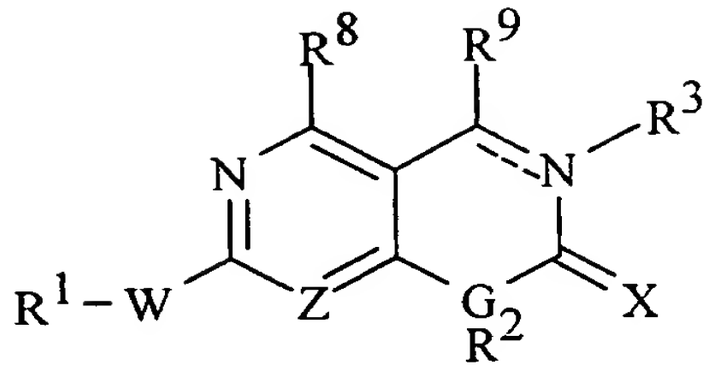
26. A method of inhibiting a cyclin-dependent kinase comprising contacting the cyclin-dependent kinase with a compound of Formula I

Sub A9



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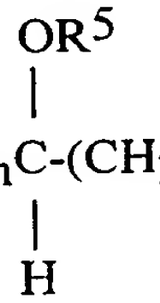
Sub A9

$R^1$, $R^2$, and $R^{10}$ are independently selected from the group consisting of H, $(CH_2)_nAr$, $COR^4$, $(CH_2)_n$heteroaryl, $(CH_2)_n$heterocyclyl, $C_1$-$C_{10}$ alkyl, $C_3$-$C_{10}$ cycloalkyl, $C_2$-$C_{10}$ alkenyl, and $C_2$-$C_{10}$ alkynyl, wherein n is 0, 1, 2, or 3, and the $(CH_2)_nAr$, $(CH_2)_n$heteroaryl, alkyl, cycloalkyl, alkenyl, and alkynyl groups are optionally substituted by up to 5 groups selected from $NR^4R^5$, $N(O)R^4R^5$, $NR^4R^5R^6Y$, alkyl, phenyl, substituted phenyl, $(CH_2)_n$heteroaryl, hydroxy, alkoxy, phenoxy, thiol, thioalkyl, halo, $COR^4$, $CO_2R^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$, aldehyde, nitrile, nitro,



heteroaryloxy, $T(CH_2)_mQR^4$, $T(CH_2)_mC(OR^5)H\text{-}(CH_2)_mQR^4$,

$C(O)T(CH_2)_mQR^4$, $NHC(O)T(CH_2)_mQR^4$,

$T(CH_2)_mC(O)NR^4NR^5$, or $T(CH_2)_mCO_2R^4$ wherein each m is independently 1-6, T is O, S, $NR^4$, $N(O)R^4$, $NR^4R^6Y$, or $CR^4R^5$, and Q is O, S, $NR^5$, $N(O)R^5$, or $NR^5R^6Y$;

when the dotted line is present, $R^3$ is absent;

otherwise $R^3$ has the meanings of $R^2$, wherein $R^2$ is as defined above, as well as OH, $NR^4R^5$, $COOR^4$, $OR^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$,

$T(CH_2)_mQR^4$, $T(CH_2)_mC(OR^5)H-(CH_2)_mQR^4$,

wherein T and Q are as defined above;

$R^4$ and $R^5$ are each independently selected from the group consisting of hydrogen, $C_1$-$C_6$ alkyl, substituted alkyl, $C_2$-$C_6$ alkenyl, $C_2$-$C_6$ alkynyl, $N(C_1$-$C_6$alkyl$)_{1 \text{ or } 2}$, $(CH_2)_nAr$, $C_3$-$C_{10}$ cycloalkyl, heterocyclyl, and heteroaryl, or $R^4$ and $R^5$ together with the nitrogen to which they are attached optionally form a ring having 3 to 7 carbon atoms and said ring optionally contains 1, 2, or 3 heteroatoms selected from the group consisting of nitrogen, substituted nitrogen, oxygen, and sulfur;

when $R^4$ and $R^5$ together with the nitrogen to which they are attached form a ring, the said ring is optionally substituted by 1 to 3 groups selected from OH, $OR^4$, $NR^4R^5$, $(CH_2)_mOR^4$, $(CH_2)_mNR^4R^5$, $T\text{-}(CH_2)_mQR_4$, $CO\text{-}T\text{-}(CH_2)_mQR^4$, $NH(CO)T(CH_2)_mQR^4$, $T\text{-}(CH_2)_mCO_2R^4$, or $T(CH_2)_mCONR^4R^5$.

$R^6$ is alkyl;

$R^8$ and $R^9$ independently are H, $C_1$-$C_3$ alkyl, $NR^4R^5$, $N(O)R^4R^5$, $NR^4R^5R^6Y$, hydroxy, alkoxy, thiol, thioalkyl, halo, $COR^4$, $CO_2R^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$, CHO, CN, or $NO_2$;

when the dotted line is absent, $R^9$ is additionally carbonyl, thiocarbonyl, imine and substituted imine, oxime and oxime ether, and

Y is a halo counter-ion.

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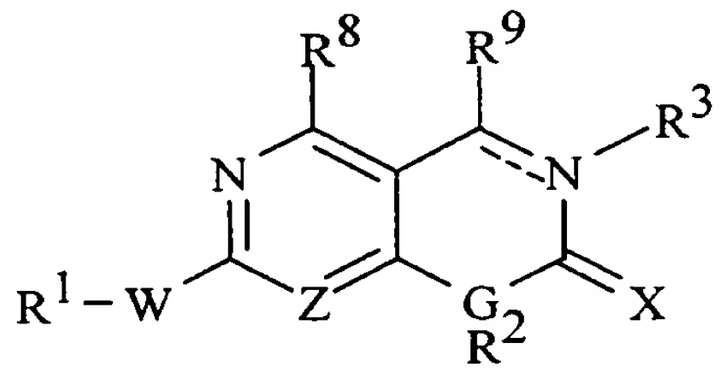
27. A method of Claim 26 wherein said cyclin-dependent kinase is cdc2.

28. A method of Claim 26 wherein said cyclin-dependent kinase is cdk2.

29. A method of Claim 26 wherein said cyclin-dependent kinase is cdk4 or cdk6.

Sub A10

30. A method of inhibiting a growth factor-mediated tyrosine kinase comprising contacting said growth factor-mediated kinase with a compound of Formula I



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and the pharmaceutically acceptable salts thereof,

wherein:

the dotted line represents an optional double bond;

Z is N or CH;

G is N or CH;

W is NH, S, SO, or $SO_2$;

X is either O, S, or $NR^{10}$;

$R^1$, $R^2$, and $R^{10}$ are independently selected from the group consisting of H, $(CH_2)_nAr$, $COR^4$, $(CH_2)_n$heteroaryl, $(CH_2)_n$heterocyclyl, $C_1$-$C_{10}$ alkyl, $C_3$-$C_{10}$ cycloalkyl, $C_2$-$C_{10}$ alkenyl, and $C_2$-$C_{10}$ alkynyl, wherein n is 0, 1, 2, or 3, and the $(CH_2)_nAr$, $(CH_2)_n$heteroaryl, alkyl, cycloalkyl, alkenyl, and alkynyl groups are optionally substituted by up to 5 groups selected from $NR^4R^5$, $N(O)R^4R^5$, $NR^4R^5R^6Y$, alkyl, phenyl, substituted phenyl, $(CH_2)_n$heteroaryl, hydroxy, alkoxy, phenoxy, thiol, thioalkyl, halo, $COR^4$, $CO_2R^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$, aldehyde, nitrile, nitro,

heteroaryloxy, $T(CH_2)_mQR^4$, $T(CH_2)_mC(OR^5)H\text{-}(CH_2)_mQR^4$,

$C(O)T(CH_2)_mQR^4$, $NHC(O)T(CH_2)_mQR^4$,

$T(CH_2)_mC(O)NR^4NR^5$, or $T(CH_2)_mCO_2R^4$ wherein each m is independently 1-6, T is O, S, $NR^4$, $N(O)R^4$, $NR^4R^6Y$, or $CR^4R^5$, and Q is O, S, $NR^5$, $N(O)R^5$, or $NR^5R^6Y$;

when the dotted line is present, $R^3$ is absent;

otherwise $R^3$ has the meanings of $R^2$, wherein $R^2$ is as defined above, as well as OH, $NR^4R^5$, $COOR^4$, $OR^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$,

$T(CH_2)_mQR^4$, $T(CH_2)_mC(OR^5)H\text{-}(CH_2)_mQR^4$,

wherein T and Q are as defined above;

$R^4$ and $R^5$ are each independently selected from the group consisting of hydrogen, $C_1$-$C_6$ alkyl, substituted alkyl, $C_2$-$C_6$ alkenyl, $C_2$-$C_6$ alkynyl, $N(C_1\text{-}C_6\text{alkyl})_{1 \text{ or } 2}$, $(CH_2)_nAr$, $C_3$-$C_{10}$ cycloalkyl, heterocyclyl, and heteroaryl, or $R^4$ and $R^5$ together with the nitrogen to which they are attached optionally form a ring having 3 to 7 carbon atoms and said ring optionally contains 1, 2, or 3 heteroatoms selected from the group consisting of nitrogen, substituted nitrogen, oxygen, and sulfur;

when $R^4$ and $R^5$ together with the nitrogen to which they are attached form a ring, the said ring is optionally substituted by 1 to 3 groups selected from OH, $OR^4$, $NR^4R^5$, $(CH_2)_mOR^4$, $(CH_2)_mNR^4R^5$,

Sub A10

$T\text{-}(CH_2)_mQR_4$, $CO\text{-}T\text{-}(CH_2)_mQR^4$, $NH(CO)T(CH_2)_mQR^4$, $T\text{-}(CH_2)_mCO_2R^4$, or $T(CH_2)_mCONR^4R^5$.

$R^6$ is alkyl;

$R^8$ and $R^9$ independently are H, $C_1$-$C_3$ alkyl, $NR^4R^5$, $N(O)R^4R^5$, $NR^4R^5R^6Y$, hydroxy, alkoxy, thiol, thioalkyl, halo, $COR^4$, $CO_2R^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$, CHO, CN, or $NO_2$;

when the dotted line is absent, $R^9$ is additionally carbonyl, thiocarbonyl, imine and substituted imine, oxime and oxime ether, and

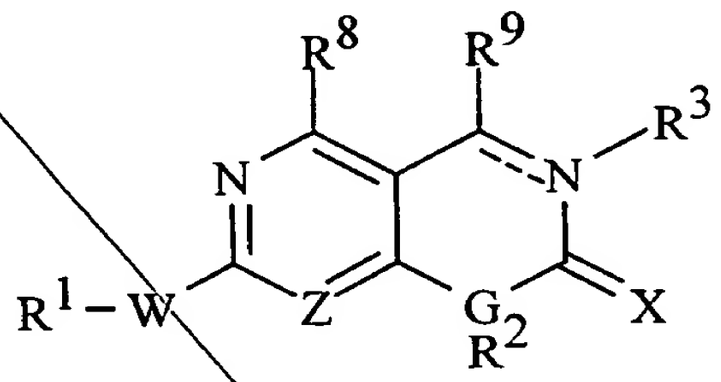
Y is a halo counter-ion.

31. A method of Claim 30 wherein said growth factor-mediated tyrosine kinase is platelet derived growth factor (PDGF).

32. A method of Claim 30 wherein said growth factor-mediated tyrosine kinase is fibroblast growth factor (FGF).

33. A method of Claim 30 wherein said growth factor-mediated tyrosine kinase is vascular endothelial growth factor (VEGF).

34. A method of inhibiting a non-receptor tyrosine kinase comprising contacting said non-receptor tyrosine kinase with a compound of Formula I



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and the pharmaceutically acceptable salts thereof,

wherein:

the dotted line represents an optional double bond;

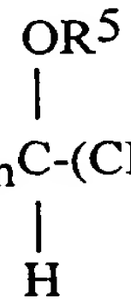
Z is N or CH;

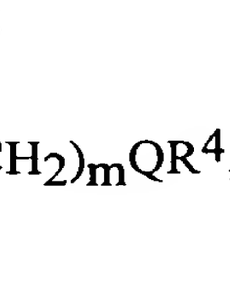
G is N or CH;

W is NH, S, SO, or $SO_2$;

X is either O, S, or $NR^{10}$;

$R^1$, $R^2$, and $R^{10}$ are independently selected from the group consisting of H, $(CH_2)_nAr$, $COR^4$, $(CH_2)_n$heteroaryl, $(CH_2)_n$heterocyclyl, $C_1$-$C_{10}$ alkyl, $C_3$-$C_{10}$ cycloalkyl, $C_2$-$C_{10}$ alkenyl, and $C_2$-$C_{10}$ alkynyl, wherein n is 0, 1, 2, or 3, and the $(CH_2)_nAr$, $(CH_2)_n$heteroaryl, alkyl, cycloalkyl, alkenyl, and alkynyl groups are optionally substituted by up to 5 groups selected from $NR^4R^5$, $N(O)R^4R^5$, $NR^4R^5R^6Y$, alkyl, phenyl, substituted phenyl, $(CH_2)_n$heteroaryl, hydroxy, alkoxy, phenoxy, thiol, thioalkyl, halo, $COR^4$, $CO_2R^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$, aldehyde, nitrile, nitro,



heteroaryloxy, $T(CH_2)_mQR^4$, 

$C(O)T(CH_2)_mQR^4$, $NHC(O)T(CH_2)_mQR^4$, $T(CH_2)_mC(O)NR^4NR^5$, or $T(CH_2)_mCO_2R^4$ wherein each m is independently 1-6, T is O, S, $NR^4$, $N(O)R^4$, $NR^4R^6Y$, or $CR^4R^5$, and Q is O, S, $NR^5$, $N(O)R^5$, or $NR^5R^6Y$;

when the dotted line is present, $R^3$ is absent;

otherwise $R^3$ has the meanings of $R^2$, wherein $R^2$ is as defined above, as well as OH, $NR^4R^5$, $COOR^4$, $OR^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$,

$T(CH_2)_mQR^4$, $T(CH_2)_mC(OR^5)H-(CH_2)_mQR^4$,

wherein T and Q are as defined above;

$R^4$ and $R^5$ are each independently selected from the group consisting of hydrogen, $C_1$-$C_6$ alkyl, substituted alkyl, $C_2$-$C_6$ alkenyl, $C_2$-$C_6$ alkynyl, $N(C_1$-$C_6$alkyl$)_{1 \text{ or } 2}$, $(CH_2)_nAr$, $C_3$-$C_{10}$ cycloalkyl, heterocyclyl, and heteroaryl, or $R^4$ and $R^5$ together with the nitrogen to which they are attached optionally form a ring having 3 to 7 carbon atoms and said ring optionally contains 1, 2, or 3 heteroatoms selected from the group consisting of nitrogen, substituted nitrogen, oxygen, and sulfur;

when $R^4$ and $R^5$ together with the nitrogen to which they are attached form a ring, the said ring is optionally substituted by 1 to 3 groups selected from OH, $OR^4$, $NR^4R^5$, $(CH_2)_mOR^4$, $(CH_2)_mNR^4R^5$, $T\text{-}(CH_2)_mQR_4$, $CO\text{-}T\text{-}(CH_2)_mQR^4$, $NH(CO)T(CH_2)_mQR^4$, $T\text{-}(CH_2)_mCO_2R^4$, or $T(CH_2)_mCONR^4R^5$.

$R^6$ is alkyl;

$R^8$ and $R^9$ independently are H, $C_1$-$C_3$ alkyl, $NR^4R^5$, $N(O)R^4R^5$, $NR^4R^5R^6Y$, hydroxy, alkoxy, thiol, thioalkyl, halo, $COR^4$, $CO_2R^4$, $CONR^4R^5$, $SO_2NR^4R^5$, $SO_3R^4$, $PO_3R^4$, CHO, CN, or $NO_2$;

when the dotted line is absent, $R^9$ is additionally carbonyl, thiocarbonyl, imine and substituted imine, oxime and oxime ether, and

Y is a halo counter-ion.

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35. A method of Claim 33 wherein said non-receptor tyrosine kinase is selected from a transforming gene of the Rous sarcoma retrovirus (Src) family.

36. A method of inhibiting a serine kinase in a mammal comprising administering a serine kinase inhibiting among of a compound of Claim 1.

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37. A method of treating a subject suffering from diseases caused by vascular smooth muscle cell proliferation comprising administering to said subject a therapeutically effective amount of a compound of Claim 1.

38. A method of treating a subject suffering from cancer comprising administering to said subject a therapeutically effective amount of a compound of Claim 1.

39. A method of inhibiting angiogenesis in a mammal comprising administering an anti-angiogenic effective amount of a compound of Claim 1.

40. A method according to Claim 39 wherein the disease state caused by angiogenesis is selected from human cancer, macular degeneration, diabetic retinopathy, surgical adhesions, and psoriasis.

41. A method of inhibiting a wee-1 kinase enzyme in a mammal comprising administering a wee-1 kinase inhibiting amount of a compound of Claim 1.

42. A compound selected from:

7-[3-(Carboxy)-phenylamino]-3-(2,6-dichloro-phenyl)-1-methyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[3-(N-Dimethylaminopropyl-carboxamide)-phenylamino]-3-(2,6-dichloro-phenyl)-1-methyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[3-(N-Dimethylaminopropyl-carboxamide)-phenylamino]-3-(2,6-dichloro-3-hydroxy-phenyl)-1-methyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[3-(Carboxy)-phenylamino]-3-(2,6-dichloro-3-hydroxy-phenyl)-1-methyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

3-(2,6-Dichloro-phenyl)-7-[4-(2-ethylamino-ethoxy)-phenylamino]-1-methyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

3-(2,6-Dichloro-3-hydroxy-phenyl)-7-[4-(2-ethylamino-ethoxy)-phenylamino]-1-methyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(Carboxamide)-phenylamino]-3-(2,6-dichloro-phenyl)-1-methyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(Carboxamide)-phenylamino]-3-(2,6-dichloro-3-hydroxy-phenyl)-1-methyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

3-(2,6-Dichloro-phenyl)-7-(3-hydroxymethyl-phenylamino)-1-methyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

3-(2,6-Dichloro-phenyl)-7-(4-morpholin-4-yl-phenylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

3-(2,6-Dichloro-3-hydroxy-phenyl)-1-methyl-7-(4-morpholin-4-yl-phenylamino)-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

3-(2,6-Dichloro-3-hydroxy-phenyl)-7-(3-hydroxymethyl-phenylamino)-1-methyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(3-Carboxypropyl)-phenylamino]-3-(2,6-dichloro-phenyl)-1-methyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

7-[4-(3-Carboxypropyl)-phenylamino]-3-(2,6-dichloro-3-hydroxy-phenyl)-1-methyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one;

3-(2,6-Dichloro-phenyl)-7-[4-(formyl-phenylamino]- 1-methyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one; and

3-(2,6-Dichloro-3-hydroxy-phenyl)-7-[4-(formyl-phenylamino]- 1-methyl-3,4-dihydro-pyrimido[4,5-*d*]pyrimidin-2(1*H*)-one.

43. A pharmaceutical formulation comprising a compound of Claim 1 in combination with a pharmaceutically acceptable carrier, diluent, or excipient.

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